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OMAGA: the 2009-2010 French registry on myocarditis

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On behalf of the Working Group on Cardiomyopathies and Heart Failure of Société Française de Cardiologie and of the Société de Réanimation de Langue Française

Background: Acute myocarditis (AM) is a rare and potentially lethal condition for which diagnosis and treatment remain challenging. The recent H1N1 flu pandemic was an opportunity to improve our knowledge about this pathology.

Methods: Since October 2009, we have prospectively enrolled patients diagnosed with AM from intensive care units and cardiology departments in France using the following criteria : anatomo-pathological proof of AM OR presence of infectious context and >1 cardiac symptom and abnormal troponin level and abnormal ECG, echo or cardiac MRI and absence of significant coronary artery disease.

Results: 71 patients (59 male, mean age 39±20) have been enrolled. Presenting symptoms were chest pain (77,5%), dyspnea (33,8%), cardiogenic shock (11,3%) and conduction disorder or significant arrhythmia (8,4%). ST segment or T wave changes were present in 88,7%. Mean troponin and CRP levels were 9,1±9,8 µg/l and 56±59 mg/l, respectively. Echocardiography showed a mean ejection fraction of 51±15%, wall motion abnormalities in 39%, and pericardial effusion in 18%. In 62% of cases, cardiac MRI was performed showing oedema (43%) and late enhancement (68%). Only 3 patients underwent a biopsy. Complications were congestive heart failure (22,5%) and ventricular arrhythmia (7%). Two patients died before hospital discharge. Viral origin of the AM was proven or presumed in 83% of patients, including 4 diagnosed with H1N1 flu. Treatment generally included beta-blockers, ACE inhibitors and aspirin.

Conclusion: AM affects mainly young patients whose prognosis may be compromised by severe complications. Follow-up of this registry will provide insight into the prognosis and the long-term impact of medical therapy.

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Heart rate recovery is a powerful prognostic factor in patients with chronic heart failure

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Background: Heart rate recovery (HRR) prognostic value is well established in patients with coronary artery disease but poorly documented in patients with heart failure (HF) and not established in those with advanced HF.

Methods: 144 patients with compensated HF underwent cardiopulmonary exercise testing (CPX) and were followed for a combined death/ transplantation/ hospitalization end point. Patients with advanced HF were defined as those with peak VO2≤ 14ml/kg/mn (n= 41/144; 28%). Mean age and left ventricular ejection fraction (LVEF) were 53±12 years and 29±7% respectively in all population and 58±11 years and 28±7% respectively in the advanced HF group. Ninety one percent of patients received betablockers (93% in advanced HF group). HRR at 1-minute post-CPX was calculated as the difference between heart rate at peak exercise and after 1 minute of active recovery.

Results: Among the 144 patients, we recorded 10 mortality, 7 cardiac transplantation and 8 hospitalization for acute HF outcome events over 16 months of follow-up. The baseline mean peak respiratory exchange ratio (RER), peak VO2, VE/VCO2 slope, and HRR1 were 1.13±0.09, 16±4 ml/kg/mn, 35±8, 13±12 beat/mn, respectively. Although LVEF, peak VO2, VE/VCO2 slope and HRR1 were significant univariate predictors of the composite end point ($p<0.05$), multivariate Cox regression analysis only retained LVEF (chi2 = 5.5, p=0.01) and HRR1 (chi2 = 5.2, p= 0.02) in the equation. In the group of patients with advanced HF the mean peak RER, peak VO2, VE/VCO2 slope, and HRR1 were 1.10±0.07, 12±1 ml/kg/mn, 39±11, 9±8 beat/mn, respectively. Kaplan-Meier analysis revealed a significant difference in survival according to a 5 bpm HRR1 threshold: 68% in patients with HRR1≤ 5 bpm vs 96% in those with HRR1> 5bpm (logrank=5, p=0.02) (HR= 2.66; CI: 2.08-2.66, p=0.02).

Conclusions: HRR is an easily measured noninvasive variable that can be used to further prognostically risk stratify patients with advanced HF.

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Prognostication in patients with heart failure and intermediate peak oxygen consumption values can be more accurately assessed by heart rate recovery

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Background: Patients with heart failure (HF) and peak oxygen consumption (pVO2) < 10 ml/kg/mn have a very poor prognosis whereas those with a pVO2 >18 ml/kg/mn have a very good prognosis. However, there remains a "grey zone" of intermediate pVO2 values between 10 and 18ml/kg/mn which needs to be further stratified. The aim of the study is to evaluate whether patients with intermediate pVO2 values can be more accurately assessed in terms of prognosis using heart rate recovery (HRR).

Methods: 92 patients with compensated HF with 10< pVO2≤ 18ml/kg/mn at cardiopulmonary exercise testing (CPX) were followed for a combined death/ transplantation/ hospitalisation end point. Mean age and left ventricular ejection fraction (LVEF) were 54±12 years and 30±6% respectively. Ninety one percent of patients received betablockers. Heart rate at 1-minute post-CPX (HRR1) was calculated as the difference between heart rate at peak exercise and after 1 minute of active recovery.

Results: We recorded 5 mortality, 4 cardiac transplantation and 5 hospitalisation for acute HF outcome events over 16 months of follow-up. The baseline mean peak respiratory exchange ratio (RER), pVO2, minute ventilation/ carbon dioxide production (VE/VCO2) slope, and HRR1 were 1.14±0.10, 14.7±2.0 ml/kg/mn, 36.6±8.5, 12±13 beat/mn respectively. Although LVEF, VE/VCO2 slope and HRR1 were significant univariate predictors of the composite end point ($p<0.01$), multivariate Cox regression analysis only retained the HRR1 in the equation (chi2 = 5.07, HR= 2.39, CI: 2.19-2.68, p= 0.02). Kaplan-Meier analysis revealed a significant difference in event-free survival according to a 7 bpm HRR1 cut-off: 65 % in patients with HRR1≤ 7 bpm vs 96% in those with HRR1> 7 bpm (logrank=14, p=0.0002) (HR= 2.53; CI: 2.42-2.65, p=0.003).

Conclusions: HRR1 is an easily measured noninvasive variable that can be used to further prognostically risk stratify patients with HF and intermediate peak oxygen consumption (10< pVO2≤ 18ml/kg/mn).

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Left ventricular dyssynchrony and exercise capacity in patients with hypertrophic cardiomyopathy

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Objectives: To investigate the impact of LV dyssynchrony on exercise capacity in patients with hypertrophic cardiomyopathy (HCM) and preserved left ventricular ejection fraction (LVEF>50%).